

# The Answer Key

Student books have an answer key for all lessons except the assessment lessons. Show students how to use the answer keys to check their work. The answer keys reduce student dependence on a teacher and they allow for independent learning. Only the teacher guides contain answers for the assessment lessons.

*This type of answer key is used for Grade 1 and Grade 2.*

Class 4		Fractions 54			
1-	a. 8	b. 4	c. 6	c. 4	
2-	a. 2	b. 3	c. 1		
	d. 3	e. 4	f. 8		
3-	a. $\frac{1}{2}$	b. $\frac{3}{4}$	c. $\frac{4}{4}$	d. $\frac{3}{10}$	e. $\frac{5}{10}$
	f. $\frac{7}{12}$	g. $\frac{1}{8}$	h. $\frac{1}{12}$	i. $\frac{1}{3}$	j. $\frac{1}{3}$
4-	a. 2	b. 3	c. 4	c. 8	
Class 4		Fractions 55			
1-	a. $\frac{1}{2}$	b. $\frac{1}{2}$	c. $\frac{1}{2}$		
	d. $\frac{1}{2}$	e. $\frac{2}{3}$	f. $\frac{1}{3}$		
2-	a. $\frac{1}{2}$	b. $\frac{2}{3}$	c. $\frac{1}{4}$		
	d. $\frac{2}{3}$	e. $\frac{2}{3}$	f. $\frac{2}{3}$		
3-	$\frac{1}{3}$				
4-	$\frac{2}{3}$				

## **How to use the supplementary materials**

## There are two main ways to use the supplementary materials:

- Use the supplementary materials to introduce and develop new skills and concepts.
- Use supplementary materials to reinforce and extend skills and concepts.

### **Use the supplementary materials to introduce and develop new skills and concepts.**

Teachers and students can use the supplementary math materials to introduce and develop the basic competencies in mathematics. The materials can be used to supplement existing textbooks when they do not provide lessons to develop a particular basic competency.

#### **Teachers and students are encouraged to follow the steps in each lesson: *presentation, practice and application***

- Write the topic of the lesson on the blackboard.
- Read the objective of the lesson with students.
- Introduce and discuss the information presented in the presentation box. Use locally available resources to help explain the skill or concept. Ask questions to find out if students are ready to begin the exercises.
- Guide the students through the practice section. Students do these exercises, not the teacher. Pay special attention to the first questions in the lesson. If students are able to do these they will have few problems with the rest of the lesson. Help students who are having difficulty *before* they move to the next question or lesson.
- Ask students to use the answer key to check their answers.
- Explain the assessment lessons to students. Assessment lessons come at the end of a set of lessons on one topic. The assessment lesson is to find out what they have learned. Teachers must check the assessment lessons. If a student can answer more than 80% of the assessment lesson correctly, they can move on to the next unit.
- If a student answers less than 80% of the assessment lesson correctly, they should practice the skills and concepts again with help from a teacher.

Teachers are encouraged to group students in pairs or in small groups of different abilities to use the materials. Ask them to work together and to talk about what they are doing.

## **Use supplementary materials to reinforce and extend skills and concepts**

Teachers and students can use the supplementary math materials to reinforce and develop concepts and skills already taught in class. If they are used this way, a student can work with or without a teacher.

### **Teachers are encouraged to:**

- Group students in pairs or in small groups of different abilities to use the materials. Ask them to work together and to talk about what they are doing.
- Explain the different steps in the lessons to your students: objective, presentation and practice. They must look at the objective and introduction carefully and then work through the practice section. Concepts and skills are presented and developed in sequence. Students should complete the lessons in a topic in sequence.
- Show students the answer key. Explain to them how to use it. They can use it to check their work and to re-work incorrect problems.
- Explain the assessment lessons to students. Assessment lessons come at the end of a set of lessons on one topic. The assessment lesson is to find out what they have learned. Teachers must check the assessment lessons. If a student can answer more than 80% of the assessment lesson correctly, they can move on to the next unit.
- If a student answers less than 80% of the assessment lesson correctly, they should practice the skills and concepts again with help from a teacher.

## Introduction

The supplementary materials for mathematics reflect the basic competencies in mathematics for the primary grades. The basic competencies for Pashto, Dari and mathematics (Grades 1-6) were developed by a group of Afghan educators in 1999. They are a description of intended learning outcomes. They describe what children should know, understand and be able to do at the end of each grade.

The purpose of the supplementary mathematics materials is to help students develop these basic competencies.

The supplementary materials in mathematics were developed by a group of Afghan educators from a range of agencies providing education for young Afghans. They are not linked to a specific textbook.

Teachers can use the supplementary mathematics materials in two ways:

1. Some textbooks do not contain activities that develop *all* the basic competencies in mathematics. The supplementary materials can be used to fill the gaps.
2. Supplementary materials can be used to reinforce and further develop the basic competencies introduced in textbooks.

All the lessons are organised to encourage teachers to use effective teaching practices.

Effective teaching practices include:

- a description of the title or objective of the lesson
- an introduction explaining the concept(s) and skill(s) to be used in a lesson
- opportunities for students to practice and apply concepts and skills independently from the teacher.
- Assessment of learning to find out what students have learned and to help decide what they should do next.

This teachers guide

- explains how the lessons are organised
- gives instructions for using the materials
- contains answers to evaluation lessons

## **How the Supplementary Materials are organised**

## New Lessons

Each new lesson is set out in the same way.

### Class

The suggested class or grade level for the lesson is given at the top of the page.

### Mathematical topic

The topic is identified from the basic competencies.

### Number of the lesson

Each lesson is numbered within a class or grade. Lessons are in a sequence.

### Objective

Each lesson has one objective. The objectives describe the purpose of the lesson. Some objectives are about developing new skills and concepts. Some lessons review existing skills and concepts.

### Presentation

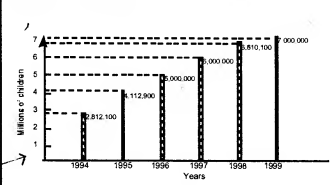
The new concept or skill is presented in this section. It is introduced in a concrete and illustrated form in a presentation box. The teacher should discuss the content of the box with students. It is important at this stage to ask questions to find out if children are ready to practice the skill or concept on their own. Teachers should use locally available resources to illustrate the skill or concept being developed.

### Class 4 Addition and subtraction 11

Objective: Add and subtract using graphs to indicate millions.

#### Study

To indicate data, we use graphs. For example vaccination of children in Afghanistan is shown in the graph for 1994 to 1999.



#### Practice

1. Solve.

- How many children were vaccinated in both 1994 and 1996?
- How many more children were vaccinated in 1999 than in 1994?
- How many children were vaccinated in both 1998 and 1997?
- What is the difference between these and those who were vaccinated in 1996?
- Add all the number of children vaccinated in the years 1997, 1998 and 1999.

### Practice

In this section, exercises are provided for students to practice. This section is for guided practice and the teacher should work closely with the students if the concepts and skills are new. Towards the end of the lesson, or if students are familiar with the concepts or skills they will need less help.

This section should take up about three-quarters of the time available for the lesson. The exercises at the beginning of the practice section are simple. They become more difficult towards the end of the lesson. Students can work individually or in pairs on the practice sections. They can use the answers in their books to check their work.

## Review Lessons

Review lessons can have one of two purposes. The first is to check that children have the pre-requisite skills and understanding for developing a new concept or skill. They come before a new concept or skill is introduced. They are often a reminder of something learned in a previous grade. The second is to review the new concepts and skills covered in a topic. These review lessons come before an assessment lesson. If students have difficulty with these lessons then it might be a good idea to practice more before they do the assessment.

Some review lessons contain an introduction box. Others do not. If there is an introduction box it is a reminder of what has been taught. If there is no review box, students can start on the practice section straightaway.

The review lessons are as important as the new lessons.

### Number of the lesson

Each lesson is numbered within a class or grade. Lessons are in a sequence.

### Mathematical topic

The topic is identified from the basic competencies.

### Class

The suggested class or grade level for the lesson is given at the top of the page.

### Objective

Each review lesson has one objective. The objective describes the purpose of the lesson. Objectives for review lessons describe the skills and concepts being reviewed.

### Presentation

The concepts or skills being reviewed are presented in this section. They are reviewed in a concrete and illustrated form in the presentation box. The teacher should discuss the content of the box with students. It is important at this stage to ask questions to find out if children are ready to practice the skill or concept on their own. Teachers should use locally available resources to illustrate the skill or concept being reviewed.

### Practice

In this section, exercises are provided for students to practice. This section is for guided practice and the teacher should work closely with the students. Towards the end of the lesson, or if students are familiar with the concepts or skills they will need less help.

This section should take up about three-quarters of the time available for the lesson.

The exercises at the beginning of the practice section are simple. They become more difficult towards the end of the lesson. Students can work individually or in pairs on the practice sections. They can use the answers in their books to check their work.

**Class Four** **Place Value 1**

**Objective** Review place value up to 1000 (thousand)

**Study**

**Practice**

1. Write the numbers shown on the abacus.  
Example:

a. b. c.

2. Follow the example

Thousands			Ones		
Hundred	Ten	Ones	Hundred	Ten	Ones
4	3	8	0		
			3	4	2
			6	6	2
					4

8,215  
8,476  
4,938  
8,543  
7,005  
8,602

3. Write the words of the following numbers.  
Example: 8,569 eight thousand five hundred and sixty nine

a. 9,665 b. 6,230 c. 7,609



## Assessment Lessons

Assessment lessons come at the end of each unit or a set of lessons on one topic. They are intended to find out if students have developed the basic competencies covered in the lessons. Teachers must check the assessment lessons. If a student can answer more than 80% of the assessment correctly, they can move on.

If a student answers less than 80% of the assessment lesson correctly, they should practice the skills and concepts again with help from the teacher before they move on. Teachers should consider re-grouping students for further practice. Sometimes a new set of peers can be helpful to a student's learning.

Explain that this is an assessment lesson so students should work individually. They should do as much as they can. If a question is too difficult they should leave it and try it again when they have finished the other questions.

At the end of the lesson collect in students work for marking. Use the answer key in the teacher's guide to mark assessment lessons.

### Class

The suggested class or grade level for the lesson is given at the top of the page.

### Mathematical topic

The topic is identified from the basic competencies.

### Number of the lesson

Each lesson is numbered within a class or grade. Lessons are in a sequence.

### Objective

Each assessment lesson has one objective. The objective describes the purpose of the lesson. Objectives for assessment lessons describe the skills and concepts being assessed.

### Assessment questions

The questions in this section are about the concepts or skills being assessed. Students should work individually on the questions and the teacher should check their work. The answers to assessment lessons are not in the student book. They are only in the teacher book.

Class 4
Assessment 7

**Objective:** Assess place value, addition and subtraction to hundred thousand

- Draw the abacuses and show the numbers
 

3 8 9 6

3 7 8 4 5

8 7 0 4 5
- Write the numbers shown in the abacuses
 

a.

b.

c.
- Write the numbers in the table:
 

	Thousands		Ones		
	Hundred Thousand	Ten Thousand	Hundred	Ten	One
2,522					
9,800					
10,910					
91,240					
215,460					

*Supplementary Materials*  
*for*

# Mathematics



**Teacher's Guide**

**Grade Four**

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



## *In the name of God, the gracious, the merciful*

These materials were developed under the facilitation of Dr Mona Habib by representatives of the following organisations:

AGBASEd	Afghan German Basic Education
AIL	Afghan Institute of Learning
CARE - International	
CIC	Children in Crisis
GTZ-BEFARe	Basic Education for Afghan Refugees
IRC	International Rescue Committee
NAC	Norwegian Afghanistan Committee
OI	Ockenden International
QCS	Quetta City Schools
SAB	Solidarite Afghanistan Belgium
SC/US	Save the Children Federation — USA
SCA	Swedish Committee for Afghanistan
SEIAL	Sanayee Institute of Education and Learning
UNOCHA	

The materials are the result of a multi agency initiative led by UNICEF and Save the Children.



The development of this book was funded by the UK Government through the Department for International Development (DFID)

## **Contents**

### **Introduction**

#### **How the supplementary materials are organized**

- New lessons
- Review Lessons
- Assessment
- Answer Keys

#### **How to use the supplementary materials**

- To introduce new concepts and skills
- To reinforce skills and concepts